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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/042,421	10/18/2001	Robert Sackstein	18989-020	1314

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EXAMINER	
GAMBEL, PHILLIP	
ART UNIT	**PAPER NUMBER**
1644	

DATE MAILED: 09/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/042,421	SACKSTEIN, ROBERT	
	Examiner	Art Unit	
	Phillip Gambel	1644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 June 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,65 and 71* is/are pending in the application.

4a) Of the above claim(s) *7-61* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4 and 62-65* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's amendment, filed 6/19/06, has been entered.
Claims 1, 2, 7 and 62-24 have been amended.
Claim 65 has been added.
Claims 5-6 have been canceled.

Claims 1-4 and 71-65 are pending.

Claims 8-61 have been withdrawn as being drawn to non-elected inventions.

Claims 1-4 and 62-65 are being acted upon as the elected invention. .

3. The text of those sections of Title 35 USC not included in this Action can be found in a prior Action.
This Action will be in response to applicant's amendment, filed 6/19/06.
The rejections of record can be found in the previous Office Action.

4. Upon reconsideration of applicant's amended claims, as well as applicant's reliance upon Dougherty et al., (J. Exp. Med. 174: 1-5, 1991; 1449, #AJ), the previous rejections under 35 U.S.C. § 112, first paragraph, written description and enablement, and 35 U.S.C. § 112, second paragraph, have been withdrawn.

5. Claims 1-5, 62-64 and newly added claim 65 are rejected under 35 U.S.C. § 102(a) as being anticipated by Dimitroff et al. (PNAS 97: 13841-13846, 2000) (1449; #AI) (see entire document) essentially for the reasons of record.

Applicant arguments, filed 6/19/06, have been fully considered but have not been found convincing essentially for the reasons of record.

Applicant relies upon the benefit for priority back to USSN 60/240,987, filed 10/18/00 to obviate the prior art.

Upon a review of USSN 60/240,987, the priority application USSN 60/240,987 does not support the broader claims of the instant application. USSN 60/240,987 appears directed to the distinct glycoform of CD44 as an L-selectin ligand on human hemopoietic progenitor cells, namely HCLL-CD44, that is a 98 kD KG1a CD44 membrane protein and which may have 120 / 130 kD bands that reflect isoforms that were designated CD44R2 and CD44Ra, respectively (see entire document, including Results). This provisional application was directed to identifying an unknown/ unassigned adhesion molecule, which was shown to have a previously unrecognized function of a well-characterized adhesion molecule (e.g. see pages 4-5, overlapping paragraph of USSN 60/240,987).

The instant claims are broader in scope than the particular adhesion molecule HCLL-CD44 indentified and characterized in the priority document.

Further, it does not appear that priority USSN 60/240,987 provides sufficient written description for the claims nucleotide sequence comprising exons 1-5, 16, 18, and 20 of a human CD44 gene, wherein the CD44 polypeptide is a human CD44H, human CD44R1 or human CD44R2", "CD44 polypeptide comprises HECA-452 reactive sialyated, fucosylated N-glycans", wherein said glycosylated CD44 polypeptide is a ligand for both an E-selectin and L-selectin", and "wherein the preparation comprises less than 5% of a polypeptide other than the glycosylated CD44 polypeptide", as currently recited and as more broadly recited than previously described in USSN 60/240,987.

Also, it is noted that it does not appear that the priority USSN 60/240,987 provides sufficient written description for the limitations of the dependent claims, again as currently recited and more broadly recited than previously described in USSN 60/240,987.

If applicant desires priority back to USSN 60/240,987, filed 10/18/00; applicant is invited to point out and provide documentary support for the priority of the instant claims. Applicant is reminded that such priority for the instant limitations requires written description and enablement under 35 U.S.C. 112, first paragraph.

A claim as a whole has only one effective filing date.
See e.g. Studiengelsellschaft Kahle m.b.H. v. Shell Oil Co. 42 USPQ2d 1674, 1677 (Fed. Cir 1997).

Applicant is reminded that entitlement to a filing date does not extend to subject matter which is not disclosed, but would be obvious over what is expressly disclosed.
See Lockwood v. American Airlines Inc., 41 USPQ2d 1961 (Fed. Cir. 1977).

Therefore, applicant's reliance upon priority back to USSN 60/240,987 has not been convincing the rejection is maintained for the reasons of record.

Dimitroff et al. teach the distinct glycoform of CD44 on human hemopoietic cells, including KG1a cell line, wherein the HCLL-CD44 taught by the reference has the same structural and functional characteristics of the instantly claimed and disclosed HCLL.

6. Claims 1-5, 62-64 and newly added claim 65 are rejected under 35 U.S.C. § 102(b) as being anticipated by Sackstein et al. (Blood 89: 2773 – 2781, 1997), as further evidenced by Dimitroff et al. (J. Biol. Chem. 276: 47623 – 47631, 2001) and Sackstein (J. Invest. Dermatol. 122: 1061-1069, 2004) essentially for the reasons of record.

Applicant arguments, filed 6/19/06, have been fully considered but have not been found convincing essentially for the reasons of record.

Applicant's asserts that no purified preparations of glycosylated CD44 polypeptides were described or isolated by Sackstein.

However, the inventor / author Sackstein does identify the HCELL / KG1a CD44 protein of the instant invention (See entire document, including the Abstract) as well as the immunoprecipitation of said HCELL / KG1a CD44 protein (see Results, including Figure 2 on page 2775 and Discussion).

It is the inventor Sackstein who teaches the hemopoietic cell L-selectin ligand which exhibits sulfate-independent binding activity that appears to be the same KG1a CD44 glycosylated polypeptide of the claimed invention (see entire document, including Abstract, Results and Discussion). Further, the Discussion describes the Results and the characterization of same KG1a CD44 isoform of the instant invention, including the nature of the sulfation-dependent epitope (see pages 2779-2780 of the Discussion)

Sackstein et al. teach the hemopoietic cell L-selectin ligand which exhibits sulfate-independent binding activity that appears to be the same KG1a CD44 glycosylated polypeptide of the claimed invention (see entire document, including Abstract, Results and Discussion).

Given the teachings including the Discussion of efforts to isolating and characterizing the structure of the KG1a ligand by Sackstein et al. at the time the invention,
one of ordinary skill would have immediately envisaged isolated HCELL / KG1a CD44 protein, including "isolated or purified protein that is substantially free of cellular materails or other contaminating protein from the cell or tissue source form which HCELL glycoprotein is derived or substantially freed form chemical precursors or other chemical when chemically synthesized , including being recombinantly produced, which is also free of culture medium (e.g. see page 11, paragraph 3 of the instant specification), thereby meeting the claimed limitation of "wherein the preparation comprises less that 5% of a polypeptide other than the glycosylated CD44 polypeptide".

As pointed out previously and in further evidence, Dimitroff et al. discloses that the L-selectin ligand disclosed in Sackstein et al. (Blood 89: 2773 – 2781, 1997) reads on the instant hemopoietic cell E- and L-selectin ligand (see reference 18 cited in the Introduction, particularly page 47623, column 2, paragraph 1).

Sackstein (J. Invest. Dermatol. 122: 1061-1069, 2004) had been added as further evidence that the claimed HCLL is not novel or new.

"although initially considered to be a novel selectin ligand bythe above biochemical criteria, mass spectrometry subsequently revealed that HCELL is not novel per se: it is a glycoform of a well-recognized integral membrane glycoprotein, CD44, that expresses the CLA epitope."

See page 1064, column 1, paragraph 1 of Sackstein (J. Invest. Dermatol. 122: 1061-1069, 2004).

Given the PTO's inability to manufacture products or to obtain and compare prior art products, the examiner properly shifted burden to applicant to establish, through objective evidence, that the very same KG1a CD44 polypeptide described by the inventor in by Sackstein et al. (Blood 89: 2773 – 2781, 1997), as well as by the inventor in the Dimitroff et al. (J. Biol. Chem. 276: 47623 – 47631, 2001). There is insufficient objective evidence that distinguishes the same or nearly the same KG1a CD44 isoforms in the prior art by the inventor from those CD44 isoforms currently encompassed by the instant claims.

Applicant's arguments have not been persuasive.

7. Claims 1-4, 62-64 and newly added claim 65 are rejected under under 35 U.S.C. 102(b) as being anticipated by Stamenkovic et al. (EMBO Journal 10: 343 –348, 1991) (see entire document, including Figure 1) as evidenced by Sackstein (US 2003/0040607 A1) and Sackstein (J. Invest. Dermatol. 122: 1061-1069, 2004) essentially for the reasons of record.

Applicant arguments, filed 6/19/06, have been fully considered but have not been found convincing essentially for the reasons of record.

Applicant's asserts that no purified preparations of glycosylated CD44 polypeptides were described or isolated by Stamenkovic et al.

In contrast to applicant's assertions, the prior art is not limited to the disclosure of the polypeptide backbone of CD44.

As indicated above for the teachings of Sackstein et al., Stamenkovic et al. teach the isolation and source of CD44, including immunoprecipitation of CD44 derived from hemopoietic cells.

Given the teachings including the teachings of isolating and characterizing as well as re-expression of each form of CD44 by Stamenkovic et al. at the time the invention, one of ordinary skill would have immediately envisaged isolated HCELL / KG1a CD44 protein, including "isolated or purified protein that is substantially free of cellular materails or other contaminating protein from the cell or tissue source form which HCELL glycoprotein is derived or substantially freed form chemical precursors or other chemical when chemically synthesized , including being recombinantly produced, which is also free of culture medium (e.g. see page 11, paragraph 3 of the instant specification), thereby meeting the claimed limitation of "wherein the preparation comprises less that 5% of a polypeptide other than the glycosylated CD44 polypeptide".

As indicated previously, applicant's arguments in conjunction with the Sackstein Declaration under 37 CFR 1.132, filed 7/27/05, were fully considered but were not found convincing essentially for the reasons of record. Although applicant argues that the reference teaches only expression by those cells such as COS or Namalwa that would not express HCELL. The reference was not limited to expression by such cells.

Stamenkovic et al. teach the expression of CD44 transcripts in primary tumors of mesenchymal and epithelial origin, in normal epithelium and in lymphocytes (see page 344, column 1, paragraph 1 and Figure 2 as well as pages 345-346).

Also, Sackstein (J. Invest. Dermatol. 122: 1061-1069, 2004) has been added as further evidence that the claimed HCLL is not novel or new.

"although initially considered to be a novel selectin ligand by the above biochemical criteria, mass spectrometry subsequently revealed that HCELL is not novel per se: it is a glycoform of a well-recognized integral membrane glycoprotein, CD44, that expresses the CLA epitope."

See page 1064, column 1, paragraph 1 of Sackstein (J. Invest. Dermatol. 122: 1061-1069, 2004).

Therefore, as pointed out previously and in contrast to applicant's assertions, Stamenkovic et al. teach hemopoietic and epithelial forms of CD44, including encoding nucleotide and amino acids of CD44, which appear to be the same or nearly the same as the instant hemopoietic cell L-selectin / E-selectin ligand (HCELL), also referenced to as KG1a CD44, which is a glycoform of CD44 and comprising SEQ ID NO: 1, as set forth in Sackstein (US 2003/0040607 A1; see entire document, including Summary of the Invention, Examples, Table 1 and Claims).

Given the teaching of the structural characterization (e.g. amino acid and encoding nucleic acids) of CD44 isoforms as well as hemopoietic source of said CD44 isoforms (e.g CD44H referenced in Stamenkovic et al.) which is consistent with the instant disclosure as well as applicant's publication Sackstein (US 2003/0040607 A1) as well as the breadth of the instant claims, the prior art appears to read on the claimed polypeptides, in the absence of objective evidence to the contrary.

As indicated previously,
Products of identical chemical composition can not have mutually exclusive properties. A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. In re Spada 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). See MPEP 2112.01.

As set forth in Atlas Powder Co. V. IRECO, 51 USPQ2d 1943 (Fed. Cir. 1999): "Artisans of ordinary skill may not recognize the inherent characteristics or functioning of the prior art... However, the discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer. "The Court further held that "this same reasoning holds true when it is not a property but an ingredient which is inherently contained in the prior art".

Where the Patent Office has reason to believe that a functional limitation asserted to be critical for establishing novelty in the claimed subject matter may be an inherent characteristic of the prior art, it has the authority to require the applicant to prove that the subject matter shown in the prior art does not possess the characteristics relied on. In re Schreiber, 44 USPQ2d 1429 (Fed. Cir. 1997).

The PTO's inability to manufacture products or to obtain and compare prior art products. Examiner properly shifted burden to applicant to establish, through objective evidence, that the very same KG1a CD44 polypeptides, including hemopoietic derived CD44 isoforms comprising SEQ ID NO: 1 described by Stamenkovic et al. and consistent with the teachings of the instant application and inventor's publication Sackstein (US 2003/0040607 A1), currently encompassed by the instant claims.

The arguments of counsel cannot take the place of evidence in the record. In re Schulze , 145 USPQ 716, 718 (CCPA 1965). See MPEP 716.01(C).

Applicant's arguments are not found persuasive.

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 1-4 and 62-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sackstein et al. (Blood 89: 2773 – 2781, 1997) AND / OR Stamenkovic et al. (EMBO Journal 10: 343 –348, 1991) in view of art known and practiced procedures to isolate and express isolated or purified proteins of interest at the time the invention was made, as taught by Ni et al. (U.S. Patent No. 5,942,417).

Given applicant's amended claims and newly submitted arguments based upon the recitation of "wherein the preparation comprises less than 5% of a polypeptide other than the glycosylated CD44 polypeptide",
New Grounds of Rejection have been set forth herein.

Sackstein et al. and Stamenkovic et al. differ from the claimed invention by not disclosing the purity of their referenced CD44 glycoforms or that they do not exemplify the isolation of their referenced CD44 glycoforms via known and practiced recombinant methods to isolate and express proteins of interest by the ordinary artisan at the time the invention was made.

Ni et al. teach the known and practiced methods of isolating and expressing isolated proteins of interest, including its application to CD44 proteins at the time the invention was made (see entire document, including Summary of the Invention, Detailed Description and Examples). Also, note that Ni et al. teach that isolated encompasses removed from its native environment, purified and produced by recombinant means (e.g. see column 18, paragraph 1).

Given the teachings of Sackstein et al. and Stamenkovic et al. concerning the expression and role of the claimed CD44 glycoforms, one of ordinary skill in the art would have isolated and produced CD44 glycoforms via various known means at the time the invention was made, including recombinant means as a standard practice to investigate the role and use of said CD44 glycoforms in physiological events. Given the standard practices of isolating and recombinantly expressing antigens, including adhesion molecules such as CD44 glycoforms at the time the invention was made, one of ordinary skill in the art had a reasonable expectation of success in preparing the claimed CD44 glycoform in preparation comprising less than 5% of the CD44 glycoform other than the glycosylated CD44 polypeptide. The advantages of isolated and purified molecules of interest, including adhesion molecules as CD44 glycoforms, were well known and practiced in the art at the time the invention was made in order to study and characterize the molecule / protein of interest for structure-function relationships as well as to employ such proteins for a wide variety of utilities associated with the molecule / protein of interest. From the teachings of the references, it was apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole was prima facie obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

10. No claim allowed.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phillip Gambel whose telephone number is (571) 272-0844. The examiner can normally be reached Monday through Thursday from 7:30 am to 6:00 pm. A message may be left on the examiner's voice mail service. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Chan can be reached on (571) 272-0841.

The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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